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MINERALS PERSONNEL STUDY

August 1981

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IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

1400 (550)

FEB 11 1982

Memorandum

To: Director

Through: Deputy Director, Energy and Mineral Resources LLB 2/12/82

From: Assistant Director, Onshore Energy and Mineral Resources 2/4/82

Subject: Minerals Personnel Study - Decision Document

In August of 1980 Bureau management chartered a study of the onshore energy and minerals program to assess the personnel problems of minerals professionals (geologists and mining engineers) and to examine issues in the management, direction, and organization of the onshore energy and minerals program.

The study identified major problems in the recruitment, retention, and proper use of minerals professionals. It also identified problems in the role of energy and minerals in multiple-use management and in the policy direction to the energy and minerals program. The study team emphasized the lack of clear minerals policy direction as a major source of both personnel and programmatic problems. We plan to address policy direction through a number of other initiatives and propose to use this study report to address minerals personnel problems.

The recommendations in the report have been modified through management review so they fit more closely with the plans for revitalizing the energy and mineral resources program. They are included in the enclosed decision documents for your review and approval. An implementation schedule is also included for your review and approval. Key recommendations for improving the recruitment and retention of geologists and mining engineers are those which provide greater career opportunities for minerals personnel in BLM and provide for better utilization of their skills. These recommendations will become part of the overall efforts in management of the energy and mineral resources programs.

Robert N. Lawton

Enclosures

Decision Document
Minerals Personnel Study

MANAGEMENT AND DIRECTION

1. Issue national policy guidance on multiple use and energy and mineral resources as provided for by the Planning Regulations.

Key elements of the recommendation:

National policy guidance on multiple use and energy and mineral resource management supplemented by specific guidance in budget documents, management plans, and Instruction Memoranda will emphasize the high priority assigned to energy and mineral resources development and clarify the role of energy and minerals in multiple-use management as well as provide guidance on how to make tradeoffs between environmental and developmental concerns. Specifically, national policy guidance will:

--Emphasize that, while multiple-use management requires BLM managers to balance a variety of resource values, the objective is to use public resources for multiple purposes, including energy and mineral resources development.

--Emphasize the need to ensure that adequate knowledge concerning mineral potential is available prior to making management decisions which would prevent or significantly restrict energy and mineral resources exploration and development.

--Emphasize the need for energy and minerals professionals to participate fully in the multiple-use management process.

--State the MBO objectives/tasks/accomplishments the Bureau is committed to achieving.

I concur: Robert J Burford
Director

2. Develop and implement an improved system for evaluating the energy and mineral resources potential of BLM managed lands and establish revised assessment standards and requirements for multiple-use management decisions.

Key elements of the recommendation:

An improved system for assessing the energy and mineral resources potential of BLM managed lands will provide a basis for revised assessment standards and requirements for multiple-use management decisions.

I concur: Robert J Burford
Director

Encl. 1

3. Develop an implementation plan for improving the integrated, coordinated management of the energy and mineral resources programs, including the effective use of national policy guidance, management by objectives and the budgeting process, particularly the annual work plan directives.

Key elements of the recommendation:

A number of recent changes are intended to improve management in the Bureau generally and in the energy and mineral resources program specifically. These changes include establishing an MBO system, issuing national policy guidance, developing an E&MR multi-year management plan, giving more budget responsibility to program offices, improving the quality of budget documents, and making more effective use of the AWP directives as a management tool.

A plan for coordinating and integrating these changes must be developed and implemented if these changes are to produce the intended results.

I concur: _____
Director

Personnel Recommendations

1. Develop and issue guidelines that clarify the roles and duties that minerals specialists are expected to perform.

   Key elements of the recommendation:

   These guidelines should include a clarification of minerals specialists' roles and duties at the Resource Area, District and State Office levels. They should provide an adequate basis for the mineral specialist and his/her manager to mutually understand how minerals specialists are to be utilized. They should also provide a basis for improving position descriptions, identifying qualification requirements and specifying job assignments.

   I concur: _____
   Director

2. Conduct a classification review of field minerals positions at all levels and establish benchmarks for use in grade differentiation which will reflect the variety of difficulties of skill within the BLM.

   Key elements of the recommendation:

   A classification review should provide a basis for classifying minerals specialist positions at a grade-level higher or lower than the GS-11 norm. The review should be a part of the developing DSC classification review approach, include participation by line managers, and be subject to Headquarters Office review and concurrence.

   I concur: _____
   Director

3. Ensure that the proposed Land Use Manager classification series is open to physical science personnel. As an interim measure expand the use of general physical science and interdisciplinary classifications.

   Key elements of the recommendation:

   More generalist positions now classified as natural resource specialists should be reclassified to allow persons holding degrees in the physical sciences to compete. The proposed land use manager classification series

is designed to correct the over use of natural resource specialist classifications. These actions should provide minerals specialists more opportunities to gain multiple-use management experience and lead to more managers who have minerals training and experience.

I concur: _____
Director

4. Request long-term competitive recruitment and/or examining authority for geologists and mining engineers from the Office of Personnel Management.

Key elements of the recommendation:

Recruitment for geologists and mining engineers is highly competitive and qualified individuals are generally available for only short periods of time. Competitive recruitment and/or examining authority will permit BLM to make a job offer on a much shorter notice.

I concur: _____
Director

5. Support the GS Conservation Division in their request to the Office of Personnel Management for a special salary rate for certain geologists.

Key elements of the recommendation:

The GS Conservation Division has requested a special salary rate for geologists in evaluation and production activities. Many BLM geologists would benefit from this change. This will to some small degree make BLM more competitive, and, possibly, add to the prestige of BLM geologists.

I concur: _____
Director

6. Provide opportunities for minerals specialists to choose either of two primary career tracks: (1) a technical track which will emphasize technical skills; and (2) a managerial track which will emphasize multiple use management.

Key elements of the recommendation:

By providing two primary tracks, minerals specialists will be able to make a conscious decision concerning their BLM career with a better understanding of what they can reasonably expect in terms of positions

and grade levels. Therefore, minerals specialists should be introduced to the two tracks and the implications of choosing between them when they attend the entry course at the Phoenix Training Center. Minerals people desiring a managerial career should incorporate specific training needs into their individual training plans and career development goals; and attend existing courses which are designed for the manager who must make multiple use decisions.

I concur: _____
Director

7. Include an introduction to minerals management in all beginning courses (lands, range, wildlife) at the Phoenix Training Center. Design a more detailed minerals management course for the experienced BLM manager who is confronted with tough minerals issues in multiple use management. This course to include such topics as mineral economics, mineral resource assessment and exploration and development practices.

I concur: _____
Director

8. Enter into agreements with selected colleges and universities to provide: (1) cooperative education opportunities for undergraduate and graduate minerals specialists, including geologists and mining engineers; and (2) training in minerals management for BLM minerals professionals.

Key elements of the recommendation:

Interns and cooperative students can be used to supplement BLM's minerals specialists workforce. The cooperative education experience can also help BLM's recruiting efforts. Students will be able to tailor their programs to prepare to work for BLM. By working closely with BLM, colleges and universities may be more amenable to make curricula changes which meet BLM's needs.

I concur: _____
Director

9. Encourage professional interaction for BLM minerals professionals through BLM workshops, other agency meetings, and meetings of professional organizations.

Key elements of recommendation:

This recommendation will establish a Bureauwide policy encouraging Bureau minerals personnel, as well as other professionals, to be a part of the professional community. The recommendation does not advocate the payment of employee expenses to attend professional meetings. However, it encourages rather than discourages attendance at professional meetings.

I concur: _____
Director

10. Promote meetings with industry to discuss mutual problems and concerns.

Key elements of recommendation:

Increased contact with industry personnel will promote better understanding of industry needs and problems. Contact between industry and Bureau personnel at the District and Resource Area level is critical to improved client/BLM relations.

I concur: _____
Director

11. Fill more mid-level minerals positions from industry and professional organizations.

Key element of recommendation:

Few minerals professionals within BLM have industry experience or knowledge of industry needs and problems. Recruitment or exchange of even a few experienced minerals professionals from the private sector will provide a much needed talent bank.

I concur: _____
Director

12. Develop a skills roster of geologists and mining engineers within the BLM in order to identify personnel with special skills.

Key elements of recommendation:

This roster will recognize minerals personnel with special skills and knowledges. They will be available for consultation and advice and on occasion for direct assistance at the option of their supervisor. Junior minerals specialists will have a source from which they can obtain technical advice.

I concur: _____
Director

13. Ensure that technical mineral specialist positions are filled by minerals specialists.

Key elements of recommendation:

Reordering priorities to emphasize energy and mineral resources development will lead to an increase in the mineral staff and a decrease in the staff of other programs. This must be done within current budget and staff constraints. In making the necessary staff adjustments, it is important that persons with the appropriate energy and minerals skills be assigned to energy and minerals professional staff positions. If unqualified persons are assigned, the realignment of priorities will not produce the desired results. Other skills may be utilized for non-professional energy and mineral positions provided minerals professionals have the opportunity to compete.

I concur: _____
Director

ORGANIZATIONAL RECOMMENDATIONS

1. Continue the current organizational practice of placing minerals professionals in the same organization as other resource professionals and where the workload is greatest.

Key elements of the recommendation:

This recommendation will provide for a close interface with other resource professionals and will encourage placing minerals professionals on-the-ground in Area Offices wherever there is a sufficient workload. The recommendation will support the decisions of the District Office/Resource Area Study. Exceptions are permissible only when the workload for a minerals skill is not sufficient at the Resource Area or District Office to justify that mineral resource skill on a full-time basis.

I concur: _____
Director

2. Use expert individuals and/or identify positions in District Offices for use as "zone minerals specialists."

Key elements of the recommendation:

The "zone minerals specialist" will be assigned to a District Office. However, the zone of responsibility will be a multi-resource area, the total district, or multi-district based on the workload and the need for that individual's body of skills. The Forest Service now uses this concept. The zone concept will provide an opportunity to most effectively use an individual's skills and provide the basis for recognizing the value of these skills.

I concur: _____
Director

3. Recognize expert individuals with Bureauwide or national reputations as "super technical specialists" but allow them to remain in a State Office where their expertise can be made available to field personnel.

Key elements of the recommendation:

This study and the State Office Study both present the concept of "super technical specialists." It will permit the recognition of unique technical individuals and allows this expertise to be used outside of their State.

I concur: _____
Director

Implementing Minerals Personnel Decision Document (MBO Schedule)

Objective II: Expand opportunities for energy and mineral resource use of public lands through streamlining leasing process and improving management of energy resources

Task D: Improve BLM Minerals/Geologic Assessment and Management Capabilities

Accomplishment 10: Implement Minerals Personnel Decision Document

	Target Date	Responsible Person
A. Issue National Policy Guidance (See also J, K, L, and N)		
1. Prepare IM to field stating policies, including attendance at meetings, contact with industry, and filling positions Area:550	5/28/82	Team * 550
2. Surname IM Area:550	6/3/82	Lawton 510
3. Surname IM Area:550	6/7/82	Blackstone 500
4. Surname IM Area:550	6/9/82	Petty 700
5. Surname IM Area:550	6/11/82	Vail 200
6. Sign IM Area:550	6/17/82	Burford 100
7. Issue IM Area:550	6/22/82	Hengel 855
B. Clarify roles and duties of BLM minerals specialists (geologists, mining engineers)		
1. Prepare draft list of tasks and define different jobs at area, district, state, and W.O. levels Area:550	5/21/82	Team 550

* "Team" presently consists of Bob Anderson, Joe Buesing, and Charlie Grymes of the Division Geology and Minerals Assessment, Rick Deery in the Division of Mineral and Geothermal Resources, Ron Fox in the Division of Personnel and Training, Steve Leroux of the Division of Management Research (all in the Washington Office), Jeff Williams of the Division of Resources in the Eastern States Office and Jean Juilland of the Division of Scientific Systems in DSC. Composition of the team is expected to change for different action items.

		Target Date	Responsible Person
2.	Obtain W.O. review Area:550	5/28/82	Team 550
3.	Prepare IM of draft list for field review Area:550	6/2/82	Team 550
4.	Brief W.O. Directorate Area:550	6/2/82	Anderson 550
5.	Surname IM Area:550	6/4/82	Blackstone 500
6.	Sign IM Area:550	6/8/82	Parker 101
7.	Issue IM (Telefax and Express Mail) Area:550	6/11/82	Hengel 855
8.	Comments to W.O. Area:550	7/19/82	State Directors
9.	Prepare IM to field identifying functional responsibilities at various organizational levels Area:550	8/2/82	Team 550
10.	Brief W.O. Directorate Area:550	8/4/82	Team 550
11.	Surname, DD/Energy and Minerals Area:550	8/6/82	Blackstone 500
12.	Surname, DD/Management Services Area:550	8/10/82	Petty 700
13.	Sign IM Area:550	8/13/82	Burford 100
14.	Issue IM Area:550	8/18/82	Hengel 855

	Target Date	Responsible Person
C. Review classification and establish benchmarks		
1. Initiate classification review based on definition of jobs (subtask B) Area:550	8/13/82	Fox 830
2. Brief WO Area:550	10/15/82	Fox 830
3. Prepare IM for field comments Area:550	10/21/82	Fox 830
4. Sign IM Area:550	10/26/82	Ondrof 810
5. Issue IM Area:550	10/29/82	Hengel 855
6. Field review and submit comments Area:550	12/6/82	State Directors
7. Develop IM with final guidance on classification benchmarks Area:550	12/23/82	Fox 830
8. Brief W.O. Area:550	1/6/83	Fox 830
9. Sign IM Area:550	1/11/83	Ondrof 810
10. Issue IM Area:550	1/14/83	Hengel 855
D. Ensure land use manager classification series is open to physical science personnel		
1. Interim measure-expand use of general physical science and interdisciplinary classifications Area:550	Ongoing	Fox 830

		Target Date	Responsible Person
2.	Ensure that classification studies (i.e., DM study, model PD's for AM's, etc.) address utilization of minerals skills/background Area:550	Ongoing	Fox 830
E.	Request long-term competitive recruitment authority from OPM for geologists and mining engineers		
1.	Initiate development of backup data Area:550	8/13/82	Murphey D-530
2.	Prepare request Area:550	10/1/82	Murphey D-530
3.	OPM act on request Area:550	1/30/82	OPM
F.	Support GS Request for special salary rate		
1.	Prepare request for BLM to be included Area:550	2/15/82	Fox/Leroux 830
2.	BLM surname request to Dept Area:550	3/9/82	Burford 100
3.	DOI sign request to OPM Area:550	3/12/82	Simms
4.	Approve request Area:550	8/1/82	OPM
G.	Develop two career track concept		
1.	Begin development of career track proposals (see "O" also) Area:550	8/13/82	Team 550
2.	Prepare IM outlining proposed career path options and decision points Area:550	8/24/82	Team 550

		Target Date	Responsible Person
3.	Brief WO Area:550	8/27/82	Anderson 550
4.	Sign IM requesting field comment on proposals Area:550	8/31/82	Lawton 510
5.	Issue IM Area:550	9/3/82	Hengel 855
6.	Field review and submit comments Area:550	10/8/82	State Directors
7.	Prepare final policy statement on minerals personnel career paths Area:550	10/22/82	Team 550
8.	Brief W.O. Area:550	10/27/82	Anderson 550
9.	Sign IM Area:550	11/3/82	Lawton 510
10.	Issue IM Area:550	11/8/82	Hengel 855
11.	Begin to incorporate into Phoenix Training Center courses Area:550	11/15/82	Rigtrup PTC
H.	Include minerals management in all beginning courses (lands, range, wildlife) at PTC; develop new mineral management course for managers		
1.	Area manager work group identify needs as they perceive them Area:550	Completed	Hamilton 812
2.	Examine existing courses Area:550	7/30/82	Rigtrup/Team PTC
3.	Finalize curriculum for minerals management course for managers Area:550	10/1/82	Task Force (composed of mostly field AM's, DM's etc.)

	Target Date	Responsible Person
4. Develop new elements for courses to satisfy needs and incorporate at PTC Area:550	10/1/82	Rigtrup/Team PTC
5. Present minerals management for managers course at PTC Area:550	FY 83	Rigtrup PTC
I. Develop cooperative agreements with schools for minerals specialists		
1. Begin to review existing cooperative agreements Area:550	8/13/82	Team/831
2. Examine school curricula for satisfying BLM needs for minerals personnel Area:550	11/30/82	Team/831
3. Begin to contact and establish additional schools as necessary Area:550	9/30/82	Team/831
J. Issue policy on attendance at professional meetings		
1. Incorporate in National Policy guidance when issued (subtask A) Area:550	5/28/82	Team 550
K. Promote meetings with industry		
1. Incorporate in National Policy guidance when issued (subtask A) Area:550	5/28/82	Team 550
L. Fill more mid-level minerals positions from industry and professional organizations		
1. Incorporate guidance in National Policy guidance when issued (subtask A) Area:550	5/28/82	Team 550

		Target Date	Responsible Person
M.	Develop skills roster		
1.	Review Minerals Professional Association skills roster Area:550	6/30/82	Team 550
2.	Determine best method of using, developing and maintaining roster Area:550	8/30/82	Team 550
N.	Ensure technical positions are filled with mineral specialists		
1.	Incorporate in National Policy guidance (subtask A) Area:550	5/28/82	Team 550
O.	Implement super technical specialist and zone geologist concept		
1.	Define super technical specialist concept and skills Area:550	6/15/82	Fox 830
2.	Define zone geologist concepts and skills Area:550	10/1/82	Team 550
3.	Field review and comment Area:550	11/1/82	State Directors
4.	Prepare IM implementing concepts Area:550	12/1/82	Team 550
5.	Brief W.O. Area:550	12/15/82	Team 550
6.	Surname IM Area:550	1/7/83	Blackstone 500
7.	Surname IM Area:550	1/12/83	Petty 700
8.	Surname IM Area:550	1/17/83	Vail 200
9.	Sign IM Area:550	1/21/83	Burford 100
10.	Issue IM Area:550	1/26/83	Hengel 855

MINERALS PERSONNEL STUDY

An Analysis of Personnel and Related Issues in The Energy and Minerals Program

August 1981

Division of Management Research

Deputy Assistant Director,
Energy and Minerals Resources

Bureau of Land Management

U.S. Department of the Interior

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EXECUTIVE SUMMARY

Minerals Personnel Study

The Bureau of Land Management (BLM) is responsible for multiple-use management of public lands under its jurisdiction. In addition, it is responsible for management of subsurface resources on Federal lands administered by other agencies and for private lands where mineral rights have been reserved. Because of the extent of mineral resources from these lands, the BLM plays a vital role in meeting domestic and international needs for energy and mineral raw materials.

This study was first proposed to assess the attrition rate of the BLM's mineral professionals (i.e. geologists and mining engineers). However, management determined that the problems of the minerals program were more complex than attrition of personnel and expanded the study. The study in its final form, examines the management and direction of the minerals program, potential organizational issues, and a variety of personnel issues including attrition of minerals professionals. The study does not address the Outer Continental Shelf program.

The minerals program is a controversial and emotion ladden area. Minerals personnel as a group feel underpaid in contrast to other agency and private industry minerals personnel and underrepresented in BLM management positions. Other Bureau professionals believe that minerals personnel are single-use oriented and unwilling to participate in multiple-use management. In this climate the study and its recommendations have been subject to considerable differences of opinion.

The Study Team concluded that there is a lack of clear minerals policy direction to the field. There is no formal policy statement recognized by field and Headquarters personnel as providing a direction and thrust to the total minerals program nor a clear understanding of its relationship to Bureau multiple-use management. As a result:

1. Minerals personnel do not believe thay are a part of the multiple-use management process.

2. Minerals program guidance tends to be topical in nature responding to the current crisis.

3. There is an excessive dependence on Departmental guidance and direction.

4. Department officials are overly involved in directing and managing Bureau minerals activities.

Actions are being taken to improve management and direction of the minerals program. However, problems are long standing and have become

fixed in many employees attitudes and will require attention over an extended period. A key study recommendation is the development of a policy statement for energy and minerals management within BLM.

There is a major problem in the recruitment, retention, and effective use of minerals personnel. The BLM and other Federal agencies are unable to compete effectively with industry salaries. In addition, limited career advancement into BLM managerial positions and under-utilization of geologist and mining engineer skills have added to retention problems. The report makes recommendations which address grade enhancement and more competitive recruitment, but recognizes the limitations of Federal pay scales in competing with industry. There is greater potential for reducing recruitment and retention problems by increasing career opportunities and improving utilization of professional skills. A key recommendation in this regard is the development of two career tracks within BLM for geologists and mining engineers. A technical track will provide opportunities for those wishing to specialize in minerals, but will recognize that a career ceiling will exist within BLM. A managerial track will provide opportunities in multiple-use managerial positions for minerals professionals.

Organization was not considered a major problem. Recommendations on organization are primarily in support of improvements to personnel related issues.

Chapter III of the report provides a more thorough discussion of all of the Study Team's recommendations.

PREFACE

The Bureau of Land Management (BLM) is responsible for multiple-use management of the public lands under its jurisdiction. The BLM is also responsible for mineral resource lands administered by other agencies and for mineral resources on some lands where the surface is now privately owned. This responsibility includes management of both renewable and nonrenewable resources for the long term social, economic and environmental benefit of the Nation. The BLM plays a vital role in meeting domestic and international needs for energy and mineral raw materials through its management of the public land mineral estate.

In 1979 several BLM State Directors proposed a study to assess the attrition rate of the BLM's minerals professionals, i.e. geologists and mining engineers, as well as the difficulty encountered in recruiting these types of specialists. In considering a study approach, it was thought that part of the problem of recruitment and retention of minerals professionals was related to the management and direction of the BLM's energy and minerals program. Therefore, a study plan was developed to include a review of the management of the onshore energy and minerals program. The study does not address the energy and mineral activities on the Outer Continental Shelf.

In May 1980 an initial study plan was developed and approved, and a work group and advisory team were formed to conduct the study. In June 1980 the BLM's new Assistant Director for Energy and Mineral Resources reviewed the study plan and requested that the plan be revised to expand the study. In addition, the membership of the advisory team was modified and a consultation group was formed. 1/

The Directorate appoved a final study plan in August 1980. The objectives of the study now became (1) to identify and clearly state the goals and objectives of the onshore energy and minerals program; (2) to provide to the Assistant Director for Energy and Mineral Resources a status report on the onshore energy and minerals program; (3) to identify the problems in the energy and minerals program; and (4) to make recommendations.

While the study was underway, the Assistant Director, Energy and Minerals Resources, initiated a number of other actions to deal with problems identified in the study. These actions focus on three kinds of projects: (1) those which emphasize program planning and development; (2) those which emphasize organizational development and management training; and (3) those addressing a specific problem such as the adequacy of the BLM's mineral assessment capability in multiple-use management. This final report reflects the progress of these actions. No conclusions are reached as to the early success of these actions.

1/ Members of the work group, advisory team, and consultation group and the study directors are listed in Appendix A.

The BLM's Deputy Assistant Director for Energy and Mineral Resources and the Chief, Division of Management Research directed the study efforts. The work group conducted interviews, collected data, and prepared the report. During the course of the study, the work group interviewed BLM field personnel; employees who had left BLM; and members of industry, State governments, professional societies, academia, environmental groups, and other Federal agencies. These interviews provided information on career opportunities for minerals professionals on internal and external factors that effect the BLM's energy and minerals program, and on how the minerals programs should perform in the context of the BLM's multiple-use mandate.

The Study Team sent a questionnaire to BLM minerals professionals who transferred to other Federal agencies during the period from July, 1977, to July, 1980. The questionnaire asked for information about their reasons for leaving the Bureau and their views on the BLM's minerals program. In addition, BLM field geologists and mining engineers completed a work distribution sheet in order to describe their work activities. The analysis of the work distribution sheets is used in the report to describe the work of the BLM minerals professionals and is the basis for several recommendations. The Study Team gathered additional statistical data from personnel and organizational records of the BLM and other Federal agencies.

Both the advisory team (consisting primarily of Federal managers and professionals) and the consultation group (consisting primarily of representatives from industry, environmental groups, and the academic community) provided input in scoping the study, in reviewing the report, and providing a balanced perspective to the study.

Chapter I provides an overview of the BLM's energy and minerals program and identifies the responsibilities of the minerals professionals in the program. Three broad areas relating to the minerals program are discussed in Chapter II of this report. These areas are (1) management and direction, (2) organization, and (3) personnnel. Within these areas, perceived problems are discussed in the context of the BLM's mineral responsibilities, current policies, and duties of the mineral professionals. Recommendations to deal with the identified problems are discussed in Chapter III.

This report should be considered as one of several efforts now underway to make improvements in the energy and minerals program. At the present time, there are a number of related tasks being undertaken to develop a comprehensive policy approach for managing the BLM's energy and minerals program. The findings of this study and the recommendations in this report can supplement several of those efforts in relation to the onshore energy and minerals program.

Related tasks of special importance to this study include: (1) preparation of issue papers on key energy and minerals issues and alternatives to deal with

those issues; (2) a review of the BLM's energy and minerals policies and an effort to develop a multi-year program plan; (3) a minerals assessment study to develop a policy statement and implementing guidelines for conducting minerals inventory; and (4) use of an organizational development process that will aid the BLM's Washington Office managers in identifying and addressing energy and minerals problems and conflicts. 2/

2/ A more detailed description of policy development efforts is included as Appendix B.

CHAPTER I

PROGRAM OVERVIEW

The Bureau of Land Management (BLM) is the multiple-use manager for the Nation's public lands. It has management responsibilty for 341 million surface acres and more than 800 million acres of Federal mineral estate. The policy for managing the Nation's public lands and resources, including energy and mineral resources, is contained in the Federal Land Policy and Management Act of 1976 (FLPMA).

The FLPMA clearly establishes a national policy that the public lands be retained in public ownership and be managed under the principles of multiple-use and sustained yield. The act also mandates that decisions on the use of these lands are to be based on inventories of the resource base and land-use plans that consider alternative resource uses. Furthermore, the decisions are to be made with the full participation of the public in consultation with State and local governments and must reflect a careful balancing of the interests of all users.

In addition to the policies of FLPMA, the BLM derives its onshore energy and minerals responsibilities from other authorities, such as the Mineral Leasing Act of 1920, as amended; the General Mining Law of 1872, as amended; the Materials Sales Act of 1947, as amended; the Geothermal Steam Act; and the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The Mining and Minerals Policy Act of 1970 provides a national mining and minerals policy that calls for development of domestic mineral resources and domestic mineral industries. The recently enacted National Materials and Minerals Policy, Research and Development Act of 1980 reinforces, supplements, and provides specifics to the 1970 act. (See Appendix C for a brief description of the statutory authorities relating to the BLM 's onshore energy and minerals programs.) Other statutory authorities, such as the National Environmental Policy Act of 1969 (NEPA), require that the environmental impacts of decisions affecting public lands and federally owned energy and mineral resources be assessed.

In order to understand the BLM 's mineral responsibilities, it is necessary to understand the relationship of those responsibilities to the multiple-use planning and decision process. This process requires managers to prepare comprehensive land-use plans to assess the suitability of an area to sustain multiple uses. At the same time, the process requires that the social, economic, and environmental effects of alternative resource uses and levels of use be analyzed. Land-use plans form the basis for decisions on the protection and management of the public lands and the allocation of resource uses or levels of use on those lands.

Onshore energy and nonenergy mineral resources are an essential part of the resource base assessed in the multiple-use planning and decision process. The significance of the BLM 's mineral resource responsibilities is illustrated by the fact that approximately 30 percent of the Nation's demonstrated coal reserves are owned by the Federal Government. In the Western United States where most of the public lands and Federal mineral resources are located, the BLM has management responsibility for as much as 60 percent of the demonstrated coal reserves. Production of Federal coal accounted for about eight percent of the Nation's total 1979 coal production. In addition, almost all of the Nation's 600 billion barrels of potentially recoverable oil from oil shale and three billion barrels of potentially recoverable oil from tar sands are administered by the Federal Government. Approximately five percent of current domestic onshore oil and gas production also comes from Federal leases. With respect to the nonenergy minerals, 40 percent of the phosphate, 65 percent of the potash, and 40 percent of the sodium resources are in public ownership. Thus, as the need for domestic energy and nonenergy minerals increases, the BLM must be in a position to respond to that need.

Geologists and mining engineers are the primary occupations required by BLM to carry out the many functions necessary to manage the mineral resources under its jurisdiction. These positions are supplemented by surface protection specialists, natural resource specialists, economists, program analysts, and others in carrying out minerals functions. In Headquarters most minerals responsibilities are performed by personnel other than geologists and mining engineers. In the field, the BLM depends on geologists and mining engineers to perform most minerals functions. For the purposes of this paper the term "minerals professional" is used to refer to the primary occupational group, i.e. geologist and mining engineers.

The BLM has approximately 216 minerals professional positions (188 geologists and 28 mining engineers). One hundred and fifty-five positions are located in Districts or Resource Areas. Fifty-two are in State Offices with nine positions distributed between the Headquarters and DSC.

With the enactment of several laws, NEPA and FLPMA among them, and the energy shortage of the 1970's, the use of Federal minerals became more important and, as a result, resource conflicts became more obvious and intense. Prior to enactment of these laws, the BLM 's multiple-use planning process had not emphasized mineral resources as a manageable commodity. The BLM issued exploration licenses and leases with limited concern for the potential impacts on the environment and surrounding communities. There was no requirement to record mining claims with the BLM, and the claimants were virtually free to develop their claims with little concern for surface disturbances. In short, the BLM did not direct or manage activities involving Federal minerals.

A BLM goal is to incorporate the minerals program into the multiple-use planning and decision process. During the inventory (or assessment) phase, those areas of the public lands that appear to have valuable mineral resources, based on available data, are identified. The results of the inventories are used in the multiple-use planning and decision process to help decide which areas should be available for mineral exploration and development. In the case of coal, the land-use plans identify areas that are acceptable for further consideration for coal leasing.

Because the BLM does not engage in drilling or other types of exploration, minerals personnel must rely on other information from sources such as literature review and limited field work to determine the value and extent of mineral occurrences on the public lands. Where drilling and exploration is necessary, the BLM relies on the Geological Survey (GS), the Bureau of Mines, or industry for data.

The BLM 's onshore mineral leasing program is carried out pursuant to the authorities contained in the Mineral Leasing Act of 1920, as amended, the Mineral Leasing Act for Acquired Lands, the Geothermal Steam Act, and the Surface Mining Control and Reclamation Act. The "leasables" include coal, oil and gas, oil shale and tar sands, sodium, phosphate, sulfur (in Louisiana and New Mexico), and potassium as well as geothermal steam. Depending on the resource, leasing is done in response to applications or in response to Bureau planning decisions or both. The decision to lease must be consistent with the land-use plans, and the proposal must be assessed for its potential environmental and socio-economic impacts. If a lease is issued, GS Conservation Division is responsible for managing surface disturbances as well as mitigating other impacts on the environment within a specified area of operation (AO). The BLM has responsibility for activities outside the AO, including granting rights-of-way necessary for that particular project.

Coal is leased primarily as a result of planning decisions. During the land-use planning process, coal lands that have medium to high development potential, that have no values greater than coal, and that are environmentally suitable are identified as acceptable for further consideration for coal leasing. From these areas, specific tracts are delineated, ranked, selected, and analyzed in a regional lease sale EIS (Environmental Impact Statement) before the Secretary of the Interior determines which tracts to offer for sale. A similar process is used to identify tracts for Federal oil shale leasing.

The BLM 's responsibilities in the locatable minerals program are derived from the General Mining Law of 1872, as amended. The locatable minerals include gold, silver, lead, and molybdenum among others. Under the Mining Law, any citizen can enter the public lands to stake a mining claim unless the land has been withdrawn for a special purpose. Prior to

the FLPMA, there was no requirement for recording those claims with the BLM. The FLPMA required that, by October 21, 1979, all existing mining claims be recorded with the BLM. Any claims staked after passage of the FLPMA (October 21, 1976) must be recorded with the BLM within 90 days. If a valid discovery is made, the claimant may make application for a patent, i.e., legal ownership of the land where the claim is located.

At the present time, there are approximately 1.3 million mining claims, some of which will result in mineral patent applications. In addition, there are 400 mineral patent applications filed with BLM. Each of these applications entails extensive field examinations and requires several months to process. Determining the validity of mining claims and processing of patent applications requires the skill of a mining engineer or geologist, as well as a mineral adjudicator. Patent applications are especially time consuming as a detailed field examination, analysis, and report by a minerals professional must be undertaken.

The saleable program under the Materials Sales Act of 1947, provides for the sale of common variety minerals, such as sand and gravel and building stone, at fair market value. Much of the saleable mineral material is used in support of road construction. A considerable amount of sand and gravel is used for roads, drilling pads, and mill sites that support the leaseable and locatable minerals programs. The BLM is required to determine fair market value prior to sale. While this determination may require a minerals professional, administration of the sale does not.

In addition, the BLM has initiated an earth sciences program. This program is designed to manage and protect resources such as paleontological values, ground water, and geologic features as well as to identify and mitigate the danger of geologic hazards. The program includes the inventory of the resources and hazards, interpretation of geologic phenomena, and management of ground water development and use.

The role of the BLM field office minerals professional is to manage the various energy and mineral resources and programs within a District or Resource Area. In offices where there are a number of mineral professionals, some may be assigned to a specific minerals program or activity. Functions for individual positions vary widely. However, a range of tasks for minerals professionals includes:

- Conducting mineral resource inventories.
- Conducting mineral-in-character determinations.
- Providing energy and mineral input to the planning system.

- Preparing environmental assessments for energy and mineral actions and providing input to environmental assessments for other resource actions.

- Serving as environmental impact statement team members.

- Preparing mineral reports in support of other activities.

- Conducting validity examinations for mining claim patent applications and mining claim conflicts.

- Administrating surface management regulations for mining claims.

- Reviewing applications (in coordination with USGS) for drilling and seismic permits.

- Doing compliance checks on leasable mineral drilling and extraction operations.

- Administrating and doing compliance checks on mineral leasing.

- Administrating mineral material sales.

- Appraising mineral material for material sales.

- Conducting ground water investigations.

- Performing inventories and managing paleontological resources.

- Performing environmental geology inventories and management tasks (geologic hazards, land slide investigation, subsidence areas, debris flow).

- Serving as a source of mineral technical expertise.

- Serving as program leaders for the various mineral activities and subactivities at State and District Offices.

This range of duties represents a multiplicity of tasks and a variety of skills is needed to perform them. The recruitment, development, utilization, and retention of employees with minerals resource professional skills in a highly competitive market presents serious problems and challenges. Even more critical is the difficult task of managing and providing coordinated policy direction to many diverse minerals activities. A discussion of management and direction, organization, and personnel, all of which affect the minerals program, are included in following chapters.

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CHAPTER II

ISSUES AND DISCUSSION

In the course of conducting this study, a number of specific issues were surfaced and recommendations were offered to deal with them. The specific issues fall into three broad categories: (1) management and direction; (2) organization; and (3) personnel. Of these, the most serious and far reaching problems fall in the personnel and management and direction areas.

A. MANAGEMENT AND DIRECTION

The BLM is organized in accordance with the traditional "line-staff" concept. The line managers responsible for carrying out the multiple-use mandate of the FLPMA as well as the laws relating to mineral development are State Directors, District Managers, and Area Managers. These line managers receive guidance and policy direction from the Headquarters Office directorate. It is within the context of this guidance and direction that BLM managers make multiple-use decisions. The Headquarters Office directorate as well as the field office managers are supported by functional staff units of resource professionals. The informal communication between functional staff units is a significant aspect of BLM operations.

BLM OPERATING STRUCTURE

Under the BLM's operating structure, the single purpose demands for use of the resources are considered and generally presented in the decision process by resource professionals working in a particular program area. The effectiveness of the field resource professionals in presenting their programs is enhanced by communication with their counterpart resource professionals in the Headquarters Office. The line managers consider the information presented by the resource professionals and integrate the single purpose inputs into a decision that complies with the BLM's multiple-use mandate and is responsive to national priorities established by the Directorate. The operating structure works well when:

- Resource professionals insure that critical information concerning their resource is presented to the decisionmaker.
- Multiple-use managers accept the information of the different resource professionals without bias and use that information to make well informed decisions.
- Guidelines are available to help the multiple-use manager make decisions involving conflicting resource programs.

- Resource professionals, while promoting their program, temper their advocacy with acceptance of the multiple-use mandate of the BLM and work cooperatively to achieve multiple-use goals.

- Headquarters resource professionals send communications to their field counterparts on how to effectively integrate their resource uses into the BLM multiple-use operations.

The Bureau's operating structure depends on the relationship between the individual resource uses and the multiple-use mandate. There is a mutual dependence of the multiple-use manager on the resource professionals for specialized resource data and, in turn, resource professionals look to the manager to provide a reasonable measure of support for the particular resource use being advocated. The resource professional (biological or physical), although serving to promote a specific resource use, can better serve the manager by tempering his or her recommendations with an understanding of other resource uses.

The operating structure works well for most of the BLM's program areas. However, there appear to be several weaknesses in this structure with regard to the minerals programs. Minerals professionals who have left the BLM indicated that there has been a lack of a positive minerals policy in the BLM, that the minerals programs are not considered equally with other resource programs in the decision process, that policy direction and Headquarters/field office communications are lacking, and that day-to-day program management is neglected. The purpose of several ongoing energy and mineral program efforts and this report is to establish a better policy framework and to provide clear and timely direction to the field.

Of the minerals professionals interviewed, most stated that they lacked guidance in how to perform their minerals program responsibilities. One of the best examples of this relates to policy direction for conducting minerals resource assessments (or inventories).

Mineral resource assessments vary in intensity and comprehensiveness throughout the BLM. Many minerals professionals believe that current mineral resource assessments are inadequate for planning and resource management. Detailed information about minerals is sporadic and inconsistent. To enhance the minerals data, geochemical and geophysical surveys are frequently needed but these efforts are costly and time is generally not available for this type of data gathering. There is no clear policy approach for conducting minerals resource assessments.

As a result, the prospective economic value of the mineral resources that is presented to the decisionmaker is not as complete as those for other resource programs such as recreation, forestry, and range. Managers, therefore, make decisions on the basis of the best information available. Usually mineral development is considered as a use only in the absence of a significant biological resource use. Clearly, there is

a need for the BLM to develop a comprehensive minerals resource assessment policy that includes criteria to identify the level of assessment needed for a given purpose. This would enhance the adequacy of the minerals assessments and managers would more than likely show more support for the minerals programs.

The need for an upgraded minerals resource assessment capability has been recognized and a multiyear program is underway to address this problem. The program includes contract studies, implementation manuals, and training for BLM personnel.

A second example of weaknesses in policy guidance is the nonintegrated approach in making budget allocations. Some of these weaknesses can be attributed, in part, to the Department, OMB, and Congress in that appropriations are program specific and provide limited flexibility and opportunity for an integrated minerals program. Minerals programs that have reached a crisis stage (i.e., were previously ignored, but are now a National priority) receive funding while other minerals programs are neglected.

Allocations are made to individual mineral subactivities rather than to mutually dependent and supportive minerals programs (e.g., sand and gravel for use in supporting exploration for leasable minerals) and funding cannot be transferred at the field level from one subactivity to another (e.g. 4111 to 4131). The policy and budget emphasis for energy and minerals is being strengthened with increased emphasis and the chartering of an energy and minerals policy development effort.

The examples of minerals assessment and budget allocation illustrate a more basic problem. The management of the minerals program has historically been crisis oriented relying on Departmental initiative for program direction. The BLM minerals staff responds well to the crisis situation when the formal BLM management or Departmental interest is maintained. However, once that interest subsides or priorities change the necessary day-to-day program management is again neglected (e.g., lack of up-to-date manual sections for the minerals programs). Also, there is a reluctance on the part of the BLM and its minerals personnel to initiate actions for developing and managing the BLM's minerals programs. Field managers are, therefore, forced to make decisions which cumulatively create an uncoordinated, haphazard, policy approach. Again, a series of major efforts is underway to enable the BLM to gain and maintain policy initiative. Specifically, a major policy review and revision along with the development of a multi-year plan for the total energy and minerals program is being conducted. An element of these efforts is to ensure that continued management and follow-up are built into the program.

A factor in Bureau reluctance to take the initiative for energy and minerals programs is the involvement by the Department in day-to-day operations. Of the 12 respondents from the Washington Office who left

the BLM for other Federal agencies, 50 percent cited over-involvement by the Department and/or other agencies as the most negative element in the BLM's energy and minerals programs. This involvement is not unique to recent years, although it seems to be increasing with the mounting interest in Federal energy and mineral resources.

The delegation of leasing authority is often cited as one example of over-involvement by the Department. In the past, the authority to approve leasing actions was delegated to the BLM Director and, in many cases, to the State Directors who oversee the planning, environmental review, and adjudication work related to the leasing actions. However, beginning in 1977, the BLM was required to obtain express approval of the Secretary for issuing coal, oil shale, uranium, phosphate, potash, and sodium leases. (This requirement has been only partially revoked.) Two other examples are the delay in delegating authority to approve environmental impact statements and the establishment of oversight offices for coal and offshore oil and gas leasing. These types of actions provide the means for continued day-to-day Departmental involvement in the BLM's programs.

Whether Departmental overinvolvement was due to the lack of BLM initiative or the lack of BLM initiative was a result of the over-involvement by the Department is a chicken-and-egg question. However, it must be recognized that constant oversight and involvement in procedural matters dilutes the enthusiasm of the BLM's staff to develop and maintain minerals programs in a responsible manner. As a result, many minerals professionals wait for policy direction rather than develop and promote their program.

At the same time, however, the BLM minerals professionals must recognize that the Department has a legitimate role and responsibility for achieving broad national policy objectives. The BLM minerals professionals must assist the Department by demonstrating that the BLM can and will respond to policy direction aimed at meeting national objectives that fall within the BLM's responsibilities and that BLM can manage its mineral resources on a day-to-day basis.

Several recent activities of the Department under the new Administration are aimed at the problem of Departmental over-involvement in Bureau operating matters. Current indications are that the Bureau is to receive greater authority to conduct operations for the Outer Continental Shelf and coal programs within the framework of clearly established Departmental goals and policies.

NEED FOR POLICY STATEMENT

Without a definitive policy statement, field managers and professionals have not had a frame of reference on which to base actions and

discussions. A frequent suggestion in interviews is for a comprehensive policy statement, in accordance with the Mining and Minerals Policy Act of 1970, that will:

> "... foster and encourage ... the orderly economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help assure satisfaction of industrial, security and environmental needs ... ."

Such a policy statement should recognize that production of mineral resources is one of the principle uses of the public lands cited in the FLPMA. Minerals professionals should be required to work actively to integrate the minerals perspective into the multiple-use process and the BLM's managers should, in turn, give minerals more consideration in the decision process.

In addition, a number of interviewees believe that the BLM should use a more opportunistic budget strategy that emphasizes the positive economic return of minerals production from Federal lands (as does the "Budget Estimates, FY 1982"). The potential revenue (direct and through generation of taxes), economic importance, and strategic value of Federal mineral resources is significant. Consideration should also be given to obtaining approval for BLM to transfer funds from one subactivity to another to respond to events requiring local program changes. This, of course, should be done within strictly enforced parameters to insure budget integrity.

This section has highlighted a number of serious problems in the management and direction of the energy and minerals program. It has further described a number of management activities being undertaken to correct the situation. These corrective actions will take commitment, reinforcement, and time to be effective. Although some action is being taken, the criticisms in this section are useful and essential as a description of the basic problems and a reminder that corrective actions must continue.

B. ORGANIZATION

The land base and mineral resources managed by the BLM vary from area to area, district to district, and state to state. Because of the diverse locations of the Federal mineral resources, some Districts and Resource Areas have more mineral related work than do others.

Under the current organizational structure, minerals management responsibilities for onshore energy and minerals programs reside within the Resource Area or District Office. State Office support is in the Division of Resources. In most State Offices and in those few District Offices where the Division of Resources Management is branched, energy and minerals is combined into a branch with lands or with lands and

recreation. The Colorado, New Mexico, Wyoming, and Eastern States Offices have a separate Branch of Energy and Minerals within their Division of Resources.

Paralegal aspects of mineral actions (adjudication) are normally handled by the Division of Technical Services in the State Office. In some cases, mineral professionals have been assigned to the Division of Technical Services to conduct mining claim examinations and mineral appraisals (technical functions not directly related to multiple-use management functions).

As part of this organizational structure, the tendency is to assign a minerals professional to each District and Area Office. This is based on the concepts of decentralized multiple-use management and on-the-ground management. These concepts encourage the placement of resource professionals, including minerals professionals, in close proximity to the resources being managed (i.e., the District or Resource Area). The recent District Office/Resource Area Study encourages greater decentralization of authority and the location of resource professionals at the Resource Areas. The BLM multiple-use management concept works best when a resource professional (physical or biological) can interact with other resource professionals and with the manager responsible for making land-use decisions.

Although not used for all National Forests, the Forest Service has developed a zone concept to utilize scarce mineral professional skills where that skill or level of skill is not needed for each individual National Forest (the equivalent of a BLM District). The "Zone Geologist" reports to one National Forest, but provides minerals professionals support to each of the National Forests within the specified zone.

According to several minerals professionals who were interviewed for this study, the current organizational arrangement limits the grade level that can be achieved and tends to isolate less experienced minerals professionals at remote locations. As a means of increasing grade levels, several of the minerals professionals suggested that the BLM centralize its minerals professionals. However, centralization violates the multiple-use management and on-the-ground management concepts.

C. PERSONNEL

Over a three year period (July 1, 1977 to July 1, 1980), at least 92 professional employees in the onshore minerals program left the BLM. Seventy-nine of those identified were geologists and mining engineers. The attrition rate for geologists and mining engineers is estimated to be in excess of 12 percent. A recent analysis estimated an average attrition rate of eight percent for all BLM occupations.

Many BLM managers and minerals professionals believe that salary is the primary reason for the rate of turnover for geologists and mining engineers. To determine if this reason was correct and to identify other possible considerations, a questionnaire was sent to 66 former BLM employees who transferred to other Federal agencies over this three year period. The professionals surveyed were asked to cite their reasons for leaving the BLM. (See Appendix D, Tables D-3 and D-4, for the complete response.) The table below provides a summary of the results of the questionnaire with regard to this question.

TABLE 1

Summary of the
Reasons for Leaving the BLM
for other Federal Agencies *
(in percent)

	Washington Office **	Field Offices **	TOTAL
Career Advancement	67 %	86 %	80 %
Under Utilization of Professional Skills	25	79	62.5
Work Environment	42	39	40
Higher Pay	58	36	42.5
BLM's Policies and/or Approach to the Minerals Programs	33	54	47.5
Geographic Location	33	32	32.5
Other	33	21	25

* Percentages in this table are based on the data in Appendix D, Table D-2. Percentages do not add to 100 because respondents generally cited more than one reason for leaving the BLM.

** Interestingly, no Washington Office respondents were geologists or mining engineers. All field office respondents were geologists or mining engineers.

As indicated in the summary table above, career advancement is the leading cause of minerals professionals leaving the BLM for other agencies. Approximately 28 percent also listed this as the primary reason. Underutilization of professional skills is the second leading cause for field minerals professionals (geologists and mining engineers), while higher pay was the second leading cause for Washington Office personnel (natural resource specialists, economists, etc. hired for minerals management positions).

Many minerals professionals wish to remain in their specific profession, while others have a desire to use their minerals experience as part of multiple-use management. In comparison with other BLM professionals, minerals professionals appear to have about the same opportunity as other resource professionals to remain in their professional field in the BLM and to reach the same grade in the field. However, in comparison with other Federal agencies, the BLM provides less of an opportunity for its minerals professionals to advance to a higher grade while remaining in their professional field.

These conclusions are supported by data gathered during the study. There are career opportunities for minerals professionals in other Federal agencies such as the Forest Service (FS), the GS, the Office of Surface Mining (OSM), and the Bureau of Mines. Generally, the average grades for minerals professionals in land management agencies (the BLM and the FS) are lower than those for agencies involved in research and specialized mineral activities (the GS).

TABLE 2

Comparison of Average Grades for Minerals Professionals *

	Geologists	Mining Engineers
Bureau of Land Management	10.47	11.62
Geological Survey	12.69	12.02
Forest Service	10.38	12.38
Interior Total (GS, Mines, BLM, etc.)	12.01	12.16

* Source: Office of Personnel Management, September 1979 except Forest Service. Forest Service data was derived from a special list of geologists and mining engineers in the Forest Service minerals and geology program (dated 12/15/80). The average grade for all Forest Service geologists is 9.88. A similar computer run for BLM minerals professionals dated 11/12/80 was prepared for validation purposes. Results were an average grade of 10.52 for geologists and 11.70 for mining engineers.

A closer comparison of the BLM and the FS (both land management agencies with a decentralized organizational structure) revealed that the BLM has higher grade potential at the Area Office level than does the FS at the comparable Ranger District level. The grade potential at the Headquarters level of both agencies is comparable. (See Table 3.) However, BLM geologists and mining engineers have not applied or been selected for jobs at the Headquarters level except for a few rare cases. In comparing the BLM State and District Office levels with the FS Regional Office and National Forest levels, the FS grade potential is higher.

TABLE 3

Comparison of the BLM's and the FS'
Grade Structure for Minerals Professionals

	Level	BLM	FS
*	Headquarters Office	Assistant Director (SES); Deputy GS-15; three Division Chiefs, GS-15; and a number of Assistant Division Chiefs and program leaders, GS-14.	SES Director, one GS-15, and a number of GS-14 group leaders.
	State/Regional Office	Two GS-13 energy and minerals Branch Chiefs. Other State Office leaders are GS-12.	Four GS-14 Regional Office leaders. Other Regional Office leaders are GS-13.
	District Office/ National Forest	Normally GS-11.	GS-12 zone leader and five National Forest GS-12's, based on complexity and responsibility. A single National Forest frequently has a GS-11. Exception: California North and South Zone are GS-13 with GS-12 subordinates. Some National Forests under a zone leader are GS-9.
	Area Office/ Ranger District	Frequently GS-11's. Some GS-9's and trainees.	Maximum GS-9.

* Most BLM top minerals positions are not filled by minerals professionals while most FS top minerals are.

The FS appears to recognize a greater range of technical and professional expertise with either a GS-13 or a GS-14 for their Regional Office leader position and a mix of GS-9 through GS-12 for the National Forest. In addition, Forest Service uses the "zone concept" where a "zone geologist", although an employee of one National Forest, has technical responsibility for several National Forests. The other National Forests in the "zone" may or may not have junior grade geologists who receive technical guidance from the "zone geologist". Although limited to California, two Forest Service "zones" are led by a GS-13 geologist or mining engineer and supported by GS-12 and lower level employees. Jobs in these two zones have been particularly attractive to BLM employees who wish to stay in their profession and perform on-the-ground work.

With regard to career opportunities within their professional field, the minerals professionals are on a par with other BLM resource professionals. In both cases, the highest non-supervisory grade at the District Office level is GS-11 and at the State Office level is GS-12. Opportunities for GS-13 and above for all professionals are generally in the Washington Office or managerial positions outside of the professional's specialized field. According to Office of Personnel Management figures for September 1979, the average grade for BLM geologists was 10.47 and for mining engineers was 11.62. The average grade for range conservationists was 9.60, and for wildlife biologists was 10.08.

A comparison of minerals professionals, range conservationists, and foresters at the GS-7 and 9 levels in the BLM indicated a similar percentage of employees remaining in their professional field. However, at the GS-11, 12, and 13 levels, significantly more geologists remained in their professional series. (See Appendix E.)

In addition to the career advancement potential within their professional field, professionals within the BLM are theoretically considered for potential career growth into management positions. However, the study compared the professional backgrounds of State Directors, Associate State Directors, State Office Division of Resources Chiefs, District Managers, Assistant District Managers, and Area Managers to the number of BLM employees with similar backgrounds. Employees with academic backgrounds in range management, natural resource management, forestry, and wildlife biology were clearly more represented in the above management positions than were geologists and mining engineers (see Appendix E). Academic background in soil science, landscape architecture, and anthropology were similar to geology and mining engineering in having a much smaller representation in the management field.

Geologists and mining engineers questioned why they are apparently underrepresented in management positions when they are some of the older professions in the BLM and the parent General Land Office. A frequent charge by biological science personnel is that minerals professionals are

reluctant to learn about other multiple-use resources and are reluctant to leave the professional specialist field for management positions. Minerals personnel charge they are excluded from management positions because they are not biological science professionals. In any event, the multiple-use management positions are filled chiefly with resource professionals with biological science degrees. Also, there are numerous instances of management positions being classified as natural resource specialists, GS-401 series, which requires a biological science background as a basic qualification, thereby excluding most minerals professionals.

Closely related to the opportunity for career advancement is the utilization of professional skills in the BLM. Of the field minerals personnel surveyed who left BLM, 79 percent indicated that their professional skills were not being fully utilized and 42 percent of those listed this as being their primary reason for leaving the BLM.

Since the BLM's minerals professionals view themselves as highly trained professionals, a number of them have indicated that several functions for which they are currently responsible could be performed by someone other than a minerals professional and thus provide more time for the minerals professionals to perform highly technical duties. Some questions exists as to which duties require a fully qualified minerals professional. Those duties frequently listed as not requiring a minerals professional are (1) compliance checks on oil, gas, and geothermal drilling operations; (2) reviewing applications for drilling and seismic permits; (3) writing environmental assessments; (4) administering mineral material sales; and (5) implementing the surface management regulations. The skills commonly recognized as needing a minerals professionals are (1) mineral resource inventories; (2) mineral-in-character determinations; (3) validity examinations; (4) preparation of mineral reports in support of other activities; (5) groundwater investigations; (6) paleontological inventories; and (7) environmental geology investigations. See Appendix F for a summary of views on duties requiring professional minerals expertise.

It is apparent from these duties, that there are two skill categories for minerals professionals within the BLM. One category is the technical skills required for mineral-in-character determinations, validity examinations and mineral inventory. This involves the classic hands on use and practice of geologic training. The second category is more oriented to participation in the BLM multiple-use management determinations through application of mineral skills and knowledge to planning, environmental statements, management of minerals activities, and the earth sciences program.

Also, all skills are not needed in every BLM minerals position. The following table shows the percentage of positions with no substantial work in given activities as reported by geologists and mining engineers responding to a work distribution questionnaire.

TABLE 4

Percent of Minerals Professionals Reporting
Substantially No Work in a Given Activity

Activity	State Office	District Office	Area Office
Mineral Inventory	59 %	30 %	47 %
EA's and EIS's	56	20	12
Planning	55	36	43
Material Sales and Permits	67	33	13
Validity Examinations	47	45	44
Mineral-in-Character Investigations	56	39	39

In many cases, BLM recruits for a mineral professional in a job where his/her skill is not needed or well utilized. This can be attributed, in part, to the fact that the managers, at the time of recruitment, frequently do not define the specific skills needed for the position. The result is attraction of applicants with inappropriate skills or misuse of the skills once the professional is in the position. Misapplication of these scarce skills further increases the turnover of minerals professionals and makes a difficult recruitment problem more difficult. In addition, needed minerals work is not identified or completed, bringing additional criticism on the minerals program.

Because of the nationwide demand for geologists and mining engineers, the BLM does not compete well for entry level minerals personnel. Mining engineers are in particularly short supply and are difficult to recruit at any level and from any source. Very few, if any, geologists are hired directly from industry at mid-levels (GS-9/11/12). Although mining engineers are in a shortage category and receive premium pay, the BLM and other agencies cannot match the salaries and fringe benefits that industry can pay them. Entry level geologists and mining engineers start at between $20,000 and $25,000 per year with industry. (Oil and Gas Journal, August 4, 1980, p. 87). This is in the GS-11 pay range. The Federal Government recruits entry level geologists and mining engineers at the GS-5 and GS-7 level. The Conservation Division of USGS report similar problems in recruiting and retaining competent minerals professionals.

A review of some recent Office of Personnel Management certificate of eligibles for entry level geologists in New Mexico and Nevada showed only 18 potential candidates on five certificates. Six were not interested, four did not reply, and two declined job offers from the BLM. No hires were made from the five certificates. Other recruitment actions resulted in no register of eligibles and the BLM was granted competitive recruitment authority to directly recruit for the position. In a highly competitive profession the standard Office of Personnel Management (OPM) register process is unable to respond competitively with industry recruiters.

It appears that the BLM makes only limited efforts to contact universities or industry to recruit minerals specialists. Even when available, the skills and knowledges taught by a university are often not skills and knowledges needed by the BLM. The BLM does not have a cooperative education program or other arrangement with universities to develop curricula which meet BLM needs in geology. Only a few universities (Louisiana State University, and Colorado State University) provide courses for geologists in land or multiple-use management. Many interviewees stated that the BLM Phoenix Training Center has the leading graduate level curriculum in these areas.

Much praise has been accorded the course for beginning minerals professionals at the Phoenix Training Center. Industry, BLM employees, and employees who left BLM support the efforts of the Training Center. However, the course is heavily oriented to mining claim validation and locatable minerals with less emphasis on the salable and leasable programs, mineral inventory techniques, and mineral economics. Because some minerals jobs in the BLM do not have a need for highly-technical mining claim examination skills, minerals professionals assigned to those jobs cannot use the skills they have been taught and want to practice. However, those assigned to jobs in highly mineralized areas are well trained. In addition, the course offered in resource management for managers focuses more heavily on lands issues rather than dealing in greater detail with the complex minerals issues.

One of the most critical staffing needs is for minerals specialists with industry experience. Industry complains about the lack of minerals professionals in the BLM who can both speak their language and understand their problems and needs. Industry minerals specialists are more knowledgeable in the economics of minerals exploration and production. The BLM's credibility with industry might be enhanced if more minerals specialists with previous industry experience worked for the BLM. Because of the energy minerals boom, there is a sellers market for experienced mining engineers and geologists. Industry can afford to pay them at a pay scale so high that the BLM cannot effectively compete in the job market on the basis of salary and other fringe benefits.

The BLM needs to emphasize the opportunities for, and potential advantages of, government employment. For example, the BLM can provide a stable employment location where the employee has maximum control over whether or not he applies for a position at another location. Also, a geologist or mining engineer can be assured of a minerals workload for some time. Employment in the BLM can reduce the fear of the boom-bust cycles that have been common for geologists and mining engineers in private industry (e.g. uranium industry at present). Also, the Federal retirement system is an incentive.

A major charge of minerals personnel is that they are discouraged from attending professional minerals meetings and that their opportunities to attend such meetings are fewer when compared to other professionals. This charge could not be substantiated or refuted. It is generally Bureau policy not to pay expenses to professional meetings unless the employee is making a presentation for the BLM. However, individual professional membership in, and attendance at, professional organizations is encouraged regardless of the professional field. Minerals professionals also feel left out of the mainstream of the BLM, and they are concerned about the lack of professional contact with their peers. Often there is one minerals professional in a Resource Area or District Office whose professional interaction is with surface management and biologically-oriented personnel only. The minerals professionals feel that their skills erode without professional interaction with others in the same field.

CHAPTER III

Conclusions and Recommendations

The objectives of the study are quite broad and encompassed more issues than the study team can effectively handle. As a result, the conclusions and recommendations address only some of the energy and minerals issues that need to be addressed (although some of these are the most critical). A number of other efforts are undergoing to deal with these gaps. They are summarized in Appendix B.

A major problem identified in this report is a weakness in clear policy direction to the field. The BLM does not have a formal policy statement that is recognized by Bureau Headquarters and field personnel as providing a direction and thrust to the energy and minerals program. This report recommends that such a policy statement be developed. Concurrent with the study the Assistant Director, Energy and Mineral Resources initiated an energy and minerals five year planning process, a number of program development actions in specific mineral program areas, and a management improvement effort for the Headquarters Office. Although actions are underway, problems are long standing and will be difficult to eradicate. Actions for improvement must recognize the severity of the problem and deal with the situation accordingly. Long standing problems that must be addressed are:

- Minerals professionals do not feel that they are a part of the BLM's multiple-use management process. Minerals personnel do not feel supported in providing minerals input to the decisionmaking process. Multiple-use managers do not receive policy direction which encourages them to accept and integrate minerals input when it is offered to them.

- Minerals program guidance, when issued, is topical in nature and responds to whatever is the current crisis. As a result, there is no overall minerals policy and there is only limited guidance to programs that are not in a crisis state. Because of the focus on responding to crises, the BLM is not ready when the next crisis occurs.

- Minerals program personnel have developed a "wait for guidance" attitude. They do not actively develop or prepare policies and programs. Rather, they wait for Departmental guidance or a State Office develops its own policy.

- Departmental Officials have become heavily involved in directing and managing minerals activities. This has further increased the Bureau's reluctance to initiate policy and manage its programs.

Resolution of these problems must be, to a high degree, a change of attitude. The most critical action is the development of an overall policy statement to guide change. This action is both achieveable and an important prerequisite to improving attitudes.

The second major problem is the recruitment, retention, and effective use of personnel. This problem is compounded by the nationwide shortage of geologists and mining engineers, the two primary professions used to fill BLM minerals positions. BLM and other Federal agencies cannot compete with industry on a salary basis. However, problems that BLM can address are the inappropriate use of the skills of the minerals professionals that the BLM is able to recruit, and the lack of career opportunities for minerals professionals within the BLM.

Bureau geologists and mining engineers often perform functions where a minerals professional background and education is desirable but not essential. The key recommendation addressing this problem is the development of two career tracks for minerals personnel within the BLM. One track is a minerals professional job with emphasis on the performance of the most technical minerals tasks (e.g., mining claim validity work, mineral-in-character examinations, geologic hazards investigations, etc.). These jobs should, in all cases, be filled by geologists or mining engineers. The second track would concentrate on minerals program management and integration of minerals with other BLM programs (e.g., planning, surface protection, program management, and environmental analysis). Geologists and mining engineers would be preferred for these positions but the positions could also be filled by personnel with other skills when minerals professionals are uninterested or otherwise unavailable. This track would permit minerals professionals to become competitive for BLM management positions by providing an opportunity to interact with other programs, thus emphasizing multiple-use. Interdisciplinary training should be stressed. These career tracks would not be exclusive and minerals professionals would be able to change tracks.

A. MANAGEMENT AND DIRECTION

Recommendations

1. Develop, publish, and emphasize a policy statement supplemented by specific guidance for energy and minerals management within the BLM. The policy statement must:

- o Recognize that energy and minerals programs must be responsive to public needs.

- o Emphasize that energy and mineral resources are an integral component of the BLM's multiple-use management process.

- Recognize that energy and minerals professionals are expected to play an active and involved role in the BLM's multiple-use process.
- Provide assurances that energy and minerals concerns will be considered in multiple-use decisions.
- State that the BLM will work toward a balance between development and environmental concerns.
- Provide guidance on how to make tradeoffs between environmental and developmental concerns by weighing competing values and opportunities in a systematic process. A decision logic approach is one process that should be considered.

- Recognize that minerals are an important BLM resource that have impacts on the national and international need for energy and strategic minerals and on the economy of communities near Federal lands.

- Recognize in the policy statement that salable, leasable, and locatable programs and assessment/planning have differences in legal and procedural requirements.

- Establish goals and objectives to respond to major issues such as "lock up" of Federal lands, energy development, and alternative energy sources.

2. Develop a consistent and comprehensive minerals resource assessment policy for the BLM. As a minimum this should include: (a) determining an acceptable level of mineral information (for planning purposes, resource management decisions, etc.) for the public lands under the BLM jurisdiction; (b) developing criteria to determine what level and type of minerals information is necessary for specific local situations, e.g., highly mineralized areas, and areas of conflicting valuable minerals deposits; and (c) determining the costs and budget impacts in terms of both money and personnel required by each level.

3. Coordinate and integrate budget allocations for minerals programs so that the individual subactivities are mutually supportive and directed toward cohesive goals.

4. Revise budgeting policy and procedures so that the BLM is allowed to shift funds and workmonths more easily between subactivities. This permits greater local flexibility. An accurate accounting expenditures coding would continue for subactivities, components, and job codes.

5. Explore ways to present budget submissions for the BLM's minerals programs in a more positive manner. The minerals budget submissions should demonstrate the revenue and tax producing potential of the mineral resources on the public lands, using cost benefit analysis where it is applicable.

B. ORGANIZATION

Recommendations

1. Continue the current organizational practice of placing minerals professionals in the same organization as other resource professionals and where the workload is greatest. This provides for a close interface with other resource professionals and encourages placing minerals professionals on the ground in Area Offices where there is a sufficient workload. Exceptions to this practice are (a) the zone geologist concept where the workload does not require the full-time use of the zone geologists skill at the area level, and (b) the placement of minerals professionals that support adjudication and appraisal functions on a full-time basis in the State Office Division of Technical Services.

2. Use expert individuals and/or identify positions in District Offices for use as a "zone minerals specialists". The "zone minerals specialist" would be assigned to a District Office with a high minerals workload. The zone of responsibility would encompass multiresource areas, the total district or multidistricts depending on the workload and the need for that individual's body of skills. The "zone" specialist" could be either a general minerals professional or a specialist in a particular minerals area (e.g., mining claim validation or paleontology).

3. Recognize expert individuals or positions as "super technical specialists" with Bureauwide or regional impact. These positions would normally be located in a State Office where their special expertise is most needed. But, as the Bureau expert in a given specialization they would be available on a regional or Bureauwide basis. They would represent the top of the technical career ladder for the Bureau. An example could be a petroleum engineer which is not generally needed in any individual State.

PERSONNEL

Recommendations

1. Develop a role statement or list of duties describing several potential roles for geologists and mining engineers. Managers should design each individual position by selecting only those items in the role statement applicable to that job and location. These items should

be included in vacancy announcements and could be used during job interviews with prospective employees to insure that such employees are fully aware of the nature of the work to be done.

2. Develop two career tracks for BLM geologists and mining engineers. A technical career track would emphasize technical skills such as validity examination, mineral character determination, and mineral inventory. The career opportunities would be to zone and State Office specialists, to super technical specialists, to the GS, or to other agencies emphasizing technical over multiple-use skills.

A managerial track would emphasize planning, management of the energy and minerals program, and cross training in other specializations. The career opportunities would be to Area Manager, Chief of Resources, District Manager, etc. This track would use the general physical science or interdisciplinary classification suggested above. The minerals professional would be expected to follow a career track similar to that followed by other BLM professional employees preparing themselves for management positions (e.g. a variety of job experiences at a number of organizational levels). The tracks would be for career planning only and employees could change tracks.

3. Expand the use of general physical science and interdisciplinary classifications. This would permit minerals professionals to qualify for many generalist jobs now classified as natural resource specialists and would provide minerals professionals access to multiple-use positions that would make them more competitive for the BLM managerial positions. Similarly, the use of a general classification series with broader qualification standards would provide more potential applicants for minerals positions not requiring a high skill level.

4. Conduct a classification review of field minerals positions at all levels and establish benchmarks for use in grade differentiation which reflect the variety of difficulties of skill within the BLM. Classification guidance on the proposed zone concepts could be included in the review. Use of subprofessionals for lower skilled jobs freeing professional minerals personnel for higher grade duties should be considered.

5. Develop a skills roster of geologists and mining engineers within the BLM in order to identify personnel with special skills. The roster would then provide a source of assistance in special skills (e.g., subsidence or unique validity examinations) without having to recruit for scarce skills in all locations. If an individual is recognized as a BLM expert in a special area, this should be acknowledged in classification actions. The individual's expertise may be used outside of his State or District. Training to enhance that expertise may be authorized.

6. Design advanced minerals courses at the Phoenix Training Center as components which support the two career tracks. All beginning minerals professionals would continue to take the beginning course. However, courses after the beginning course should be developed as a series of component subjects and each minerals specialist could tailor his curriculum to the needs of his State or District and his preferred career track.

7. Include training in mineral economics and extraction practices as components of advanced minerals training and in multiple-use manager training. The multiple-use manager component would be for familiarization with the minerals industry while specialist training would be for those minerals specialists working most directly with industry.

8. Request from the Office of Personnel Management long-term competitive recruitment and/or examining authority for geologists and mining engineers. This should be integrated with greater recruitment and cooperative efforts with colleges, universities, and professional societies.

9. Support the GS Conservation Division in their request to the Office of Personnel Management for a special salary rate for certain geologists. The GS Conservation Division has requested a special salary rate for geologists in evaluation and production activities. If approved, many BLM geologists would be covered under that salary rate.

10. Develop a program to hire more cooperative education students in geology and mining engineering. This would provide an opportunity to recruit through on-the-job training and permit the student to learn about the BLM.

11. Fill more mid-level minerals positions from industry and profesional organizations. Use of the competitive recruitment authority in Recommendation 8 above would allow BLM to move quickly to recruit minerals professionals when they are available.

12. Work with colleges and professional societies to develop curricula for a multiple resource management oriented geologist. Graduates should be targeted for those jobs primarily concerned with planning, program management, and environmental assessment.

13. Encourage professional interaction for BLM minerals professionals through BLM workshops, other agencies meetings, and meetings of professional organizations. This recommendation does not advocate a change in the Bureau policy regarding payment of expenses to attend professional meetings. However, it does encourage participation by Bureau personnel in all occupations to be a part of the professional community including publication of their investigations in professional journals.

14. Promote contacts and meetings with industry to discuss mutual problems and concerns. Bureau policy should be one of working with groups to solve common problems. Managers shold encourage such contacts.

APPENDICES

APPENDIX A

LIST OF TEAM MEMBERS FOR THE ENERGY AND MINERALS PROGRAM STUDY

Study Directors

Donald Truesdell - Deputy Assistant Director for Energy and Mineral Resources, BLM

John Moeller - Chief, Division of Management Research, BLM

Work Group

Steve Leroux, Co-leader - Division of Management Research

Michael Schwartz, Co-leader - Division of Onshore Energy Resources, BLM

Alice Hewitt - Office of Personnel Management

John Gregg - Nevada State Office, BLM

Lindsay Otterness - Denver Service Center, BLM

George Neuberg - Montana State Office, BLM

Hank Wilson - New Mexico State Office, BLM

Ron Fox - Division of Personnel and Training, BLM

George Schmidt - Division of Mineral Resources, BLM

Advisory Team

George Turcott, Chairman

Daniel Miller - Geologist, State of Wyoming

Bob Moore - Colorado State Office, BLM

Gary Horton - Conservation Division, Geological Survey

Floyd Patterson - Office of Personnel, Department of the Interior

Stuart Hughes - American Institute of Professional Geologists

Larry Woodard - New Mexico State Office, BLM

Consultation Group

William Dresher - University of Arizona

Buzz Hunt - State of Utah

Don L. Sherwood - Sherman and Howard

Bill Curtis - Independent Petroleum Association of America

John Justafson - Environmental Protection Agency

Howard Banta - Forest Service

Dan Poole - Wildlife Management Institute

George Davis - Geological Survey

Bob Lawton - Department of Energy

Chuck Cook - American Mining Congress

Keith Knoblock - American Mining Congress

Editor

Myra Musialkiewicz - Office of Coal Management, BLM

APPENDIX B

SUMMARY OF BLM
ENERGY AND MINERALS POLICY AND PROGRAM EFFORTS

The BLM has begun a number of efforts to assess its energy and minerals programs. This involves reviews, analyses, and streamlining actvities which take in almost the entire spectrum of the Bureau's energy and minerals areas of responsibility. These efforts are in response to needs identified by the Bureau as well as the new Secretary and his staff. Some of the activities have been going on for a number of months, while others have begun only recently. Each, however, is important in its own right and is a part of the total effort needed to develop streamlined responsive minerals programs that reflect the national goals for developing energy and mineral resources while protecting the environment.

These activities are in two primary areas: 1) program and policy development; and 2) organizational effectiveness and management improvement. The key actions under each include:

1. Program and Policy Development

The most important effort in this area, other than this study, is a major policy review and revision along with the development of a multiyear program plan for the total energy and minerals program.

Other specific activities are:

Outer Continental Shelf (OCS)

Program reassessment of OCS including reviews of: the 5-year leasing schedule; OCS program guidance; environmental assessments; and the current program for OCS studies.

Onshore Oil and Gas

Review of oil and gas leasing and development procedures and development of a proposal to streamline them.

Geothermal

Review of leasing and development procedures and development of a proposal to streamline them.

Oil Shale and Tar Sands

Review of current program plans and development of options which will establish priorities for these programs.

Coal

Joint review with the GS to streamline procedures.

Uranium

Development of a position paper on Bureau's capabilities in this program.

Solar

Review of Bureau activities and assignment of responsibility for coordinating future actions.

Onshore Nonenergy Mineral Resource Programs

Review of current procedures for locatable, saleable, and leasable minerals programs. Development of a proposal for an effective, efficient program that is coordinated with other multiple-use considerations.

Strategic Minerals

Development of a proposal for a DOI strategic minerals program prepared jointly with the Bureau of Mines and GS.

Minerals Assessment Study

An effort aimed at improving the BLM's minerals inventory capability and establishing levels of inventory needed for various decisions. This includes participation by the Bureau of Mines, GS, and the National Academy of Sciences.

Surface Management Regulations

Development of a briefing package on the BLM regulations including comparison with Forest Service regulations and an analysis of public comments.

2. Organizational Effectiveness and Management Improvement

The Bureau needs to make more effective use of energy and minerals organizational and managerial capabilities. The key effort in this is an ongoing program to develop a fully functioning management team for Headquarters minerals leadership. This includes all persons at the program leader level and above and includes identification of management training needs.

Specific activities are:

- OCS management planning and review meetings to deal with issues raised by ongoing studies and to plan actions to implement new policy.

- OCS office reviews to identify barriers to effectiveness and efficiency and recommend ways of removing them.

- Review and updating of tracking systems for Bureau energy and minerals issues and projects.

- Presentation of organizational alternatives for Headquarters energy and minerals functions.

APPENDIX C

MAJOR LAWS AFFECTING THE BLM ENERGY AND MINERALS PROGRAM

1. General Mining Law of 1872 - Established the right to explore and locate for minerals on the public lands. All minerals not identified in subsequent acts as reserved for leasing may be discovered and patented - along with the overlying surface - if recoverable and marketable. This has been the basic act under which locatable minerals have been "managed" since 1872.

2. Mineral Leasing Act of 1920 - Established the basic law under which leasing of both energy and nonenergy onshore minerals takes place. This act places restrictions on acreage and ownership, allows for competitive and noncompetitive leasing, and sets usual royalty rates.

3. Material Sales Act of 1947 - Established the basis for selling common varieties of mineral material such as sand and gravel.

4. Outer Contential Shelf Lands Act of 1953 - Establishes an OCS leasing program.

5. National Environmental Policy Act (NEPA) - Requires environmental assessment prior to any authorized on-the-ground action. The requirements of NEPA result in writing environmental statements prior to initiation of major Federal actions.

6. Mining and Minerals Policy Act of 1970 - Established a national mining and minerals policy to guide the operation of Federal programs.

7. Geothermal Steam Act of 1970 - Established the basis for leasing of geothermal resources.

8. Federal Land Policy and Management Act of 1976 (FLPMA) - Organic Act for BLM. FLPMA provisions that have significant impact on the minerals program include:

a. Sections 314 dealing with mining claim recordation.

b. Section 603 dealing with wilderness study areas. This section provides for mineral surveys to be conducted by the Geological Survey and the Bureau of Mines to determine mineral values, if any, of areas recommended as suitable for wilderness.

c. Section 202 recognizing a Bureau planning system. Minerals is one of the components of planning and is a dominant use of a particular tract as opposed to other potential uses. Frequently, conflicting uses for specific tracts create difficulties in land-use decisionmaking.

d. Title V affecting rights-of-way. Although not a direct component of the minerals program, it is a provision of law that requires personnel to be aware of rights-of-way in performing mineral leasing functions.

9. Surface Mining Control and Reclamation Act of 1977 - Regulates surface coal mining operations on Federal and private lands. It significantly affects leasing and surface rehabilitation on Federal coal lands.

10. Federal Coal Leasing Amendments Act of 1976 - Established specific rules to guide the development of Federal coal. This act was further amended in 1978.

11. National Materials and Minerals Policy, Research and Development Act of 1980 - Expands and supplements the policy direction of the Mining and Minerals Policy Act of 1970.

APPENDIX D

SUMMARY OF THE VIEWS OF BLM EMPLOYEES WHO TRANSFERRED TO OTHER AGENCIES

Sixty-six (66) requests for information were sent to minerals employees who had transferred to other Federal agencies or bureaus between July 1, 1977, and July 1, 1980. Forty-six (46) were returned for a 70 percent return. Five responses were not used in the totals because the respondents did not represent the onshore energy and minerals program (the focus of the study). The respondents are as follows:

26 Geologists (None in the Washington Office)

1 Mining Engineer (District Office)

1 Program Analyst (Washington Office)

6 Mineral Leasing Specialists (Washington Office)

2 Economists (Washington Office)

1 Minerals Management Specialist (State Office)
1 Minerals Management Specialist (Washington Office)
1 Reclamation Specialist (Washington Office)

1 Environmental Specialist (Washington Office)

1 Unidentified

41 TOTAL

12 Washington Office

4 State Offices

10 District Offices

13 Area Offices

2 Denver Service Center

41 TOTAL

Data derived from this analysis is summarized in the following tables:

TABLE D-1

MAJOR DUTY WHILE WITH BLM

(Minerals Personnel Transferring from BLM 7-1-77 to 7-1-80)

	EIS or EAR Work	Planning	Case Work	Technical or Quality Review	Other 1/
Washington Office	2	-	2	5	7
State Office	1	4	-	3	2
District Office	6	6	2	-	1
Area Office	6	1	8	-	-
Denver Service Center	-	1	-	1	-

1/ Other includes duties such as budget, policy development, decision documents, leasing policy, program management, AWP and program monitoring (DO), inventory (SO), coordination, and legislative review.

Totals exceed number of respondents since several respondents listed two or more major duties.

TABLE D-2

ATTENDANCE AT PHOENIX TRAINING CENTER

(Minerals Personnel Transferring from BLM 7-1-77 to 7-1-80)

	Beginning Minerals Course	Advanced Minerals Management	Other	None
Washington Office	1	-	1	10
State Office	3	-	1	-
District Office	4	-	2	4
Area Office	10	-	2	1
Denver Service Center	1	-	1	-
TOTAL	19	-	7	15

TABLE D-3

PRIMARY REASON FOR LEAVING BLM

(Minerals Personnel Transferring from BLM 7-1-77 to 7-1-80)

	Higher Pay	Better Geo-graphical Location	Professional Skills not Utilized	Better Career Advancement	Disagreement with BLM Policy and/or Approach	BLM Work Environ-ment	Other
Washington Office	2	-	2	1	1	3	2
State Office	-	-	1	1	1	-	-
District Office	2	-	4	2	-	1	-
Area Office	1	1	6	4	1	-	-
Denver Service Center	-	-	-	-	-	-	1
TOTAL	5	1	13	8	3	4	3
Field Offices (including DSC)	(3)	(1)	(11)	(7)	(2)	(1)	(1)

TABLE D-4

ALL REASONS FOR LEAVING BLM

(Minerals Personnel Transferring from BLM 7-1-77 to 7-1-80)

	Higher Pay	Better Geographical Location	Professional Skills not Utilized	Better Career Advancement	Disagreed with BLM Policy and/or Approach	BLM Work Environment	Other	Total Respondents
Washington Office	7	4	3	8	4	5	4	12
State Office	3	-	3	3	2	0	1	3
District Office	3	3	6	8	6	5	1	10
Area Office	4	6	11	12	6	4	3	13
Denver Service Center	-	-	2	1	1	2	1	2
TOTAL	17	13	25	32	19	16	10	40
Field Office (including DSC)	(10)	(9)	(22)	(24)	(15)	(11)	(6)	(28)

Note: All field office respondents except one were geologists or mining engineers and all Washington Office respondents were not.

TABLE D-5

WAS BLM JOB ACCURATELY DESCRIBED IN JOB INTERVIEW

(Minerals Personnnel Transferring from BLM 7-1-77 to 7-1-80)

	Yes	No	Not Sure	No Interview
Washington Office	10	-	-	1
State Office	3	-	-	-
District Office	5	4	1	-
Area Office	6	5	2	-
Denver Service Center	1	1	-	-
TOTAL	25	10	3	1
Less Than 1 Year	1	3		
1-3 Years	9	6	1	
4-10 Years	10	1	2	1
11 Years or more	5	-	-	-
TOTAL	25	10	3	1

TABLE D-6

POSITIVE ELEMENTS IN BLM
ENERGY AND MINERALS PROGRAM

(Minerals Personnel Transferring from BLM 7-1-77 to 7-1-80)

	Most Positive Element	One of Three Most Positive Elements
BLM training especially the Phoenix Lands and Minerals School	8	12
Opportunity for a viable energy and minerals program	4	5
Integrated resource approach	3	4
Dedicated Bureau employees	2	4
Coal program	3	3
Recognized need for minerals management	2	3
Important and interesting work	2	3
Environmental protection	2	3
Good guidelines	1	3
TOTAL RESPONDENTS	37	

Note: This is the result of a free choice response question. Accordingly, potential for categorization is limited. Conversely, where categorization does occur, the results must be considered significant.

TABLE D-7

NEGATIVE ELEMENTS IN BLM ENERGY AND MINERALS PROGRAM

(Minerals Personnel Transferring from BLM 7-1-77 to 7-1-80)

	Most Negative Element	One of Three Most Negative Elements
Minerals program not recognized or supported	8	12
Skills improperly utilized	4	10
Mismanagement and no positive program	3	9
Limited career advancement	3	9
Too many agencies involved	7	8
Program run by nonminerals personnel	2	8
Too much red tape	3	6
Too much planning	2	5
Lack of funds and personnel	1	5
Irresponsible environmental protection	-	4
Too political	1	3
Too centralized	1	3
TOTAL RESPONDENTS	41	

Note: This is the result of a free choice response question. Accordingly, potential for categorization is limited. Conversely, where categorization does occur, the results must be considered significant.

APPENDIX E

ADVANCEMENT OF MINERALS PROFESSIONALS
INTO BUREAU MANAGEMENT

Data relating to academic disciplines within the BLM were obtained from the computerized personnel file maintained by the Denver Service Center. Table E-1 relates the number of geologists and selected other academic disciplines in key managerial positions. Key managerial positions are defined as State Directors; Associate State Directors; State Office, Chiefs of Resources; District Managers; Assistant District Managers; and Area Managers. All of these positions generally are considered key career advancement positions and were also retrievalbe through the computerized personnel system.

Table E-2 is based on the assumption that, if advancement opportunities are equal, the percentage of employees moving out of their professional series into managerial and general jobs should be approximately equal. It compensates for the possible bias in Table E-1 where the employees in key management positions are representative of the BLM beginning professional skill mix of 10 to 20 years ago.

TABLE E-1

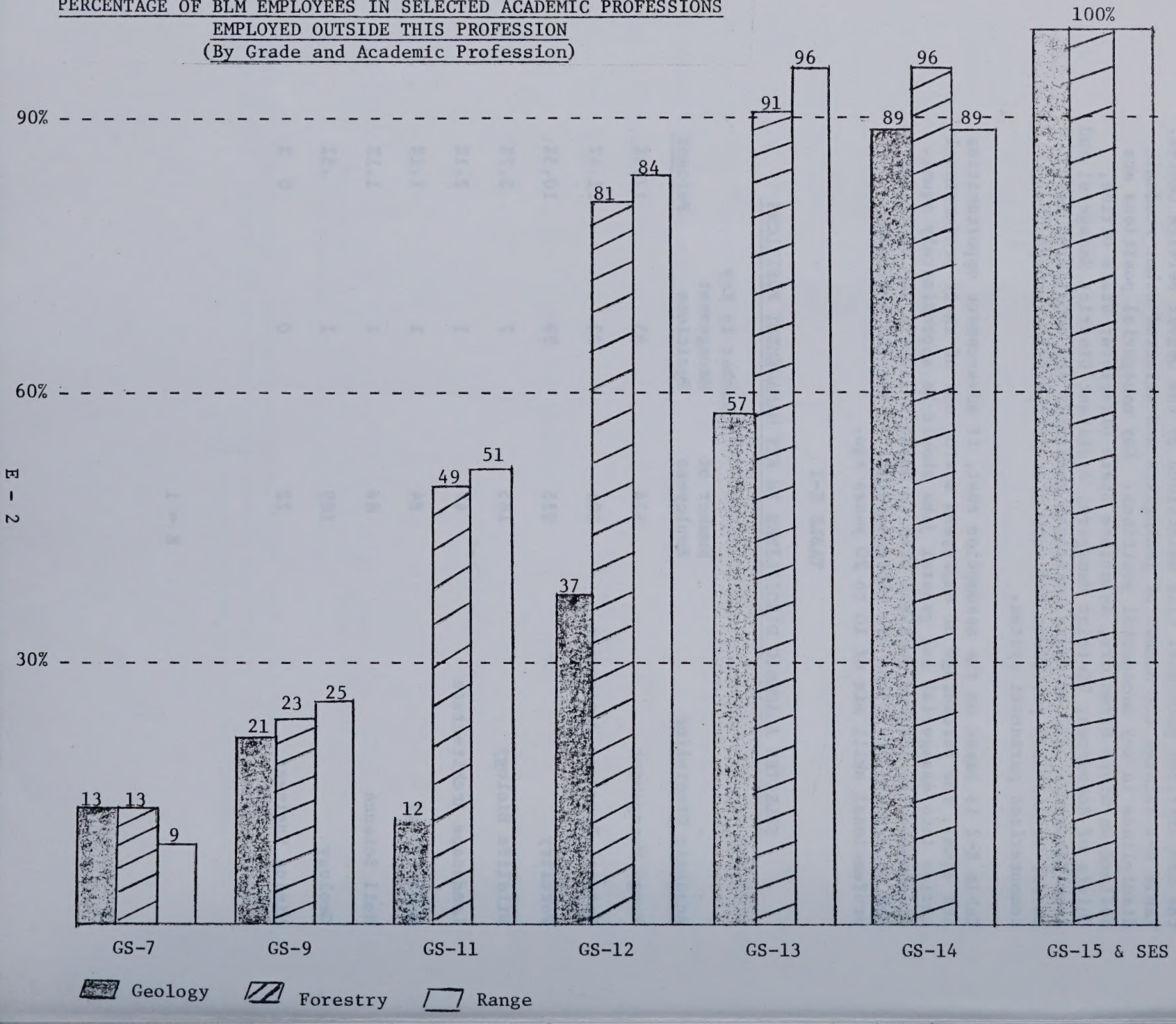
SELECTED ACADEMIC DISCIPLINES IN KEY MANAGEMENT POSITIONS

Academic Discipline	Number of Employees	Number in Key Management Positions	Percent
Range Management	674	83	12.3%
Natural Resource Management	201	23	11.4%
Forestry	935	99	10.5%
Wildlife Biology	185	7	3.7%
Landscape Architecture	47	1	2.1%
Anthropolgy	84	1	1.1%
Soil Science	86	1	1.1%
Geology	189	1	.5%
Mining Engineer	22	0	0 %

TABEL E - 2

PERCENTAGE OF BLM EMPLOYEES IN SELECTED ACADEMIC PROFESSIONS EMPLOYED OUTSIDE THIS PROFESSION

(By Grade and Academic Profession)



APPENDIX F

SUMMARY OF VIEWS ON DUTIES
REQUIRING PROFESSIONAL MINERALS EXPERTISE

Minerals professionals were asked to complete a work distribution sheet describing their duties. They were then asked to identify which duties required a professional geologist or mining engineer. Instructions on the second question were misleading due to a misprint. However, thirty six employees did respond. Opinions varied widely and are summarized below. "Yes" indicates that a majority of the respondents felt that a professional geologist or mining engineer was required for those duties. "No" indicates that a majority of the respondents felt that a professional geologist or mining engineer was not required for that task. "Mix" indicates that there was no clear majority of opinion concerning that duty.

	State Office	District Office	Area
Training and Guidance	Yes	Yes	No
Minerals Inventory	Yes	Yes	Yes
EA/EIS	Mix	Mix	No
Planning	Mix	Mix	Yes
Mineral Material Sales and Permits	Yes	Mix	No
Administration and Management	Mix	Mix	Mix
Validity Examinations	Yes	Yes	Yes
Trespass Investigations	Yes	Yes	Yes
Mineral Character Investigations	Yes	Yes	Yes
Public Assistance	Mix	Mix	Mix
Applications for Permit to Drill (O&G and Geothermal)	-	No	No
Paleontology	-	-	Yes
Compliance	Mix	No	No

APPENDIX G

WORK DISTRIBUTION FOR FIELD OFFICE GEOLOGISTS AND MINING ENGINEERS

Geologists and mining engineers in field offices were requested by mail to complete a work distribution sheet estimating the time they spent in 11 categories of work. Thirty-four (34) State Office, 40 District Office, and 32 Area Office minerals professionals responded. The following tables summarize their responses.

TABLE G-1

Average Percentage of Time by Task [2/]

Task	State Office	District Office	Area Office
Training and Guidance	8	7	4
Mineral Inventory	9	12	8
EA/EISs	6	15	25
Planning	4	10	9
Material Sales & Permits	8	7	12
Administration & Management	14	10	5
Validity Examinations	20	7	7
Trespass	3	3	3
Mineral in Character	4	7	8
Other Mineral [1/]	19	17	8
Other Nonmineral	6	6	8

1/ Other minerals is a variety of tasks which were not reported or reportable in the other specific categories. Examples of tasks listed in this category are leasing and compliance (oil and gas and geothermal), public inquiries, earth science, coal coordination and oil shale activities.

2/ Data rounded so does not total to 100%.

APPENDIX G

TABLE G-2

Percentage of Employees with Substantially No Work in a Given Category

Task	State Office	District Office	Area Office
Training and Guidance	38	38	46
Mineral Inventory	59	30	47
EA/EISs	56	20	12
Planning	55	36	43
Material Sales & Permits	67	33	13
Administration & Management	36	26	33
Validity Examinations	47	45	44
Trespass	68	54	65
Mineral in Character	56	39	39
Other Mineral 1/	24	18	19
Other Nonmineral	45	45	48

1/ Other minerals is a variety of tasks which were not reported or reportable in the other specific categories. Examples of tasks listed in this category are leasing and compliance (oil and gas and geothermal), public inquiries, earth science, coal coordination and oil shale activities.

APPENDIX G

TABLE G-3

Percentage of Employees with Significant Work in a Given Category (25% or More)

Task	State Office	District Office	Area Office
Training and Guidance	6	3	0
Mineral Inventory	12	13	13
EA/EISs	9	15	50
Planning	0	13	16
Material Sales & Permits	9	5	3
Administration & Management	32	5	3
Validity Examinations	26	5	9
Trespass	3	0	0
Mineral in Character	0	5	3
Other Mineral 1/	31	23	9
Other Nonmineral	9	3	6

1/ Other minerals is a variety of tasks which were not reported or reportable in the other specific categories. Examples of tasks listed in this category are leasing and compliance (oil and gas and geothermal), public inquiries, earth science, coal coordination and oil shale activities.

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